

Draft Report  
Incidental Harassment Authorization  
Issued June 28, 2014 – June 27, 2015 to the City of San Diego for  
La Jolla California Children's Pool Construction and Harbor Seal Monitoring

Presented to  
Jolie Harrison, Division Chief  
Permits and Conservation Division  
NOAA Fisheries, Office of Protected Resources  
1315 East-West Hwy  
Silver Spring, MD 20910

April 15, 2015

City of San Diego  
Public Works Department  
Engineering and Capital Projects Branch  
Architectural Engineering and Parks Division

by  
Doyle A. Hanan, PhD  
Hanan & Associates, Inc.

## Executive Summary

In 2012, Hanan & Associates, Inc. (H&A) was contracted by the City of San Diego to help obtain Incidental Harassment Authorization from NOAA Fisheries for pinnipeds in conjunction with demolishing the existing lifeguard station at Children's Pool (CP), La Jolla, California and building a new station on the existing site. Because the demolition and construction activities during 2013 were subject to delays and construction could not be completed by December 15, 2013, the City applied for and received a second IHA issuance (2014-15) and because of similar delays this past season is now applying for a third IHA to allow construction during 2015-16. The first IHA was issued June 28, 2013 and the second on June 28, 2014; they included Pacific harbor seals, California sea lions, and northern elephant seals for Level B harassment incidental to demolition and construction activities. Mitigation incorporated monitoring seal presence, demolition and construction sounds, and any incidental harassment of Pacific harbor seals, California sea lions, or northern elephant seals on the beach. H&A monitored at seven locations (this construction season August 6, 2014 through March 15, 2015 and last year June 3, 2013 through February 12, 2014). A sidewalk ramp which passes through the construction site to the stairs for South Casa Beach was worked on for public safety and completed on January 15, 2015 (also required by the California Coastal Commission to be open to the public).

Throughout the construction period, H&A made hourly counts of pinnipeds and people present by location while monitoring sound. During 127 days of hourly counts, we counted a total of 63,598 harbor seals and 27,844 people; compared to 2013, 115 days with hourly counts totaling 60,631 harbor seals and 26,037 people. Recorded sound levels ( $n = 4,458$  this season and 4,769 in 2013) revealed mean sound levels with no construction of 68.9 dB re 20  $\mu$ Pa (ranging 51.5 to 97.2 dB re 20  $\mu$ Pa) this season and 69.2 dB re 20  $\mu$ Pa during 2013 (ranging 55.6 to 93.7 dB re 20  $\mu$ Pa). Mean sound levels with construction this season was 71.3 dB re 20  $\mu$ Pa (ranging 49.4 to 102.7 dB re 20  $\mu$ Pa) and during 2013, 70.3 dB re 20  $\mu$ Pa (ranging 50.7 to 103.1 dB re 20  $\mu$ Pa). This past construction season, there were 746 observations of Level B harassment causing a total of 20,279 seal harassments (total takes) with an average of 27 seals per observation. They are attributed to construction: 227 observations of alerts and flushes (7,424 takes); public: 415 observations of alerts and flushes (10,000 takes); other: 102 observations of alerts and flushes (2,835 takes). During the 2013 construction season, there were 654 observations of alerts and flushes (16,959 total takes); construction: 180 observations of alerts and flushes (5,147 takes); public: 380 observations of alerts and flushes (8,639 takes); other: observations of 92 alerts and flushes (1,999 takes). There were no observations of Level A takes either season. There has been no indication of site abandonment especially considering the large number (60+) of pups counted at CP March 13, 2015; compared to the entire pupping season total of 60+ born last year.

# Table of Contents

Introduction .....	5
Figure 1. Old Lifeguard Station from beach level at Children’s Pool, La Jolla, CA.....	5
Species of Concern .....	6
Need for Incidental Harassment .....	6
Figure 2. Excavator removing debris from beach level and over visual/acoustic barrier during first year. Note seals at water’s edge and visitors behind rope barrier at monitoring location: “Mid-Rope”. Note monitoring location: “Top of Stairs” at far left of photo (end of tan fence screening material and gray wall) and location: “Bottom of Stairs” at corner of small gray wall to left of large rock on beach where people are present. ....	7
Mitigation and Monitoring Measures .....	7
Figure 3. Children’s Pool Beach closure sign installed by the City of San Diego December 15, 2014. ....	8
Required mitigation measures from the 2013 and 2014 IHAs and how addressed: .....	8
Figure 4. Children’s Pool visitors viewing seals during the 2013-4 pupping season construction moratorium. During the 2013-14 pupping season, docents documented over 60 seal births; this 2014-5 season on March 13, 2015 we observed 60+ pups at Children’s Pool Beach therefore total births were higher this year. ....	9
Figure 5. Building visual/acoustic barrier as seen from monitoring location: Top of Stairs (at juncture of tan and gray walls) next to construction site. ....	10
Results of Monitoring Activities .....	13
Figure 6. Harbor seal counts during most recent construction period (2014-15, blue trend line) compared to previous period (2013-14 red trend line) at Children’s Pool, La Jolla, CA. Counts include CP beach, South Casa Beach, Seal Rock, and reef area. ....	14
Hourly Pinniped Counts.....	14
Figure 7. Children's Pool Harbor Seal Daily counts, Weekly Peak Haulout Counts, and running mean of counts during three tide cycles which stays above the lower 95% confidence level; Predicted haul out curve with upper and lower 95% Confidence Levels and solid vertical lines for Start (8/6/14) and End (12/15/15) of construction and finish of ramp South Casa Beach (1/15/15). ....	15
Hourly Sound Recordings .....	16
Figure 8. Monitoring location Breakwall 1 and sound meter on breakwater railing.....	17
Table 1. Mean sound (dB re 20 µPa) and mean distance from source (in meters) by type of equipment and monitoring location. Top of Stairs (CPT) and Casa (Figures 10 and 11) are two locations closest to construction just outside safety fencing. Middle Rope (CPM) location is about midway across Children’s Pool beach and next to the City installed rope barrier. CPB is at the extreme south end of CP beach at the bottom of the access stairs. ....	18
Table 1. Continued: Casa beach is a west end of the construction site near the reef. W Gull is on the sea wall monitoring site (S5) and W Seal (S6) is also on the sea wall, the farthest monitoring location from the construction site. ....	19
Observed Harassments .....	20
Table 2. Summary of Children’s Pool Alerts (seals raise heads) and Flushes (seals go into water). Count is number of disturbances observed for a category: Biological includes birds and pinnipeds; Construction includes anything related directly to construction at CP; CBD means could not be determined. Reaction is the seal’s response to disturbance (alert or flush). Total Seals is the sum of seals disturbed and mean is average number of seals disturbed by category. ....	20

Figure 9. Comparison of 2013-14 to 2014-15 harbor seal counts by time of day. Note similarity and the early morning declining trend in both years. .... 21

Discussion..... 21

Literature Cited ..... 22

Figure 10. Children’s Pool construction site and measurements away from construction site. .... 23

Figure 11. Location of monitoring stations (Top of Stairs, Bottom of Stairs, Middle Rope, Casa, Breakwall 1, and Breakwall 2) at Children’s Pool, La Jolla, CA. .... 24

Figure 13. Monitoring location: Breakwall 2. Note Breakwall 1 located this side of second man on wall (tan shirt) and note yellow rope barrier on beach at white sign with four people standing on beach. .... 26

Figure 14. Moving visual/acoustic barriers to lower level of construction site after removal of old building. .... 26

Table 3. 2013 Summary of sound levels in decibels (dB re 20 μPa) recorded during periods with no construction and during construction at each of the monitoring sites. .... 27

Table 4. 2014 Summary of sound levels in decibels (dB re 20 μPa) recorded during periods with no construction and during construction at each of the monitoring sites. .... 27

Appendix I. 2014 Monitoring plan for the La Jolla Children’s Pool Lifeguard Station demolition and construction:..... 28

Appendix II. Daily Monitoring Sheet to be maintained while observing construction, recording sound, and visitors. .... 31

Appendix III. Daily Observation Sheet for recording all observed harassments of marine mammals at Children’s Pool ..... 33

## Introduction

The City of San Diego first applied for and was granted Level B Incidental Harassment Authorization (IHA) by National Marine Fisheries Service (NMFS) on June 28, 2013 expiring June 27, 2014 and a second IHA for June 28, 2014 through June 27, 2015. Both IHAs were for demolition of the existing structure and construction of a new lifeguard station immediately above Children's Pool (CP), at 827 ½ Coast Boulevard, La Jolla, California (32° 50'50.02"N 117°16'42.8"W; Figures 1, and 10).



Figure 1. Old Lifeguard Station from beach level at Children's Pool, La Jolla, CA.

The new station will be a three-story, partially subterranean-1,877 square-foot building with beach access level public restrooms and showers, lifeguard lockers, and sewage pump room; second level containing two work stations, ready/observation room, kitchenette, restroom, and first aid station; and third 'observation' level to include a single occupancy observation space, radio storage closet, and exterior catwalk. Interior stairs will link the floors.

Conditions of the IHAs required: monitoring of pinnipeds, sound, and people present at the site; environmental conditions; working hours; visual/sound barriers; a review of seal hauling behavior following two months of construction (to address the potential of site abandonment); analysis of harbor seal abundance relative to tide cycles; a construction closure during harbor seal pupping season (December 15 through June 1); a draft report 90 days following end of construction; a final report following NMFS review of the draft, and additional conditions stated in the 2013 and 2014 IHAs (See Mitigation Measures below).

Because of numerous delays including: nesting migratory birds (western seagulls, *Larus occidentalis*) at the construction site; an unexpected storm water drainage pipe running through the site, requiring extensive modification; removal of the Western Alliance for Nature video camera and moving its cabling to another location on the site (but camera was not set up again for security reasons); and other unforeseen construction delays; the project was not finished before the 2013 or 2014 pupping seasons. Activities accomplished prior to the 2014 pupping season were: all necessary building



demolition, moving and retrofitting the storm drain, water-proofing remaining walls, dirt backfilling, rough plumbing, ground-floor cement pouring, second floor cement pouring, erection of a few steel beams, cement pouring for the beach access ramp, installation of fence posts, additional rough electrical and plumbing. To allow for completion of the new lifeguard station, the City applied for a third IHA to cover the project after expiration of the first and second IHAs. As requested by NOAA Fisheries, this is a report of monitoring and observations June 2014 through March 15, 2015 even though construction has not been completed; it does not cover the last month (June 2015) of the IHA authorized period, when construction is scheduled to resume following the designated harbor seal pupping season.

## Species of Concern

Pacific harbor seals, *Phoca vitulina richardii*, haul out on nearby beaches and rocks below the building site. Seal abundance has increased since 1979 and seals are documented to give birth on these beaches during December through May (Hanan 2004, Hanan & Associates 2011, Hanan and Hanan 2014). Several studies have identified seal behavior and estimated seal numbers including daily hauling patterns and seasonal area use (Yochem and Stewart 1998; Hanan 2004, Hanan & Associates 2011, Hanan and Hanan 2014). In this report focused on the last construction season, we present our CP observations documenting harbor seals hauled out during June 3, 2013 through March 13, 2015 and associated construction observations, sound recordings, documentation of IHA authorized seal harassment, and documentation of all other observed seal harassment at this site.

California sea lions, *Zalophus californianus*, and northern elephant seals, *Mirounga angustirostris*, are also observed on CP beach and nearby areas (Yochem and Stewart, 1998; Hanan 2004, Hanan & Associates 2011, Hanan and Hanan 2014) but in small numbers (less than 5). The City requested that these two species be included in the IHA application for 2014 because these two species are known to haul out occasionally at CP and were documented at CP during 2013 monitoring activities.

## Need for Incidental Harassment

Because of the proposed demolition of the old station and construction of a new station above the CP beach, it was anticipated that these activities would likely incidentally harass harbor seals, elephant seals, and sea lions at CP but not cause serious injury. The harassment was anticipated to be both visual and acoustic; although, the sound levels reaching the pinnipeds was not anticipated to exceed 90 dB re 20  $\mu$ Pa, Level B IHA was sought and issued by NMFS.





Figure 2. Excavator removing debris from beach level and over visual/acoustic barrier during first year. Note seals at water's edge and visitors behind rope barrier at monitoring location: "Mid-Rope". Note monitoring location: "Top of Stairs" at far left of photo (end of tan fence screening material and gray wall) and location: "Bottom of Stairs" at corner of small gray wall to left of large rock on beach where people are present.

## Mitigation and Monitoring Measures

As an additional protective management measure for the seals at CP, the City of San Diego closed CP Beach to the public during pupping season, December 15 through May 15, 2015. This measure has been effective in keeping most people off the beach although we did record instances of violations and noted the likelihood of people on the beach at night based on footprints observed in early morning.



Figure 3. Children's Pool Beach closure sign installed by the City of San Diego December 15, 2014.

#### Required mitigation measures from the 2013 and 2014 IHAs and how addressed:

- a) The construction activities, shall be prohibited during the Pacific harbor seal pupping season at Children's Pool (December 15<sup>th</sup> to May 15<sup>th</sup>) and for an additional two weeks to accommodate lactation and weaning of late season pups. Thus, construction activities shall be prohibited from December 15<sup>th</sup> to June 1<sup>st</sup>.

-Demolition/construction at CP was postponed starting December 15, 2014, although a public access ramp on the west side of the construction site was worked on and finished January 15, 2015 for public safety and to meet California Coastal Commission requirements for public access to South Casa Beach just southwest of Children's Pool.





Figure 4. Children's Pool visitors viewing seals during the 2013-4 pupping season construction moratorium. During the 2013-14 pupping season, docents documented over 60 seal births; this 2014-5 season on March 13, 2015 we observed 60+ pups at Children's Pool Beach therefore total births were higher this year.

- b) The construction activities shall be scheduled Monday through Friday; however they may continue on weekends to ensure completion of the project in 2014. To the maximum extent practicable the demolition and construction activities shall be conducted from approximately 8:30a.m. to 3:30 p.m. (i.e. daylight hours), during the daily period of lowest haul-out occurrence; however, demolition and construction activities may be extended from 7:00 a.m. to 7:00 p.m. to help assure that the project is completed during the 2014 demolition and construction window. Harbor seals typically have the highest daily or hourly haul-out period during the afternoon from 3:00 pm to 6:00p.m.

-construction workers usually arrived at CP prior to 07:00 hours with a mean construction start time of 07:22; the latest finish time for construction was 17:40 hours (mean = 14:16); during 2013 and 2014-15, all construction activities were conducted on weekdays.

- c) A visual and acoustic barrier will be erected and maintained for the duration of the project to shield demolition and construction activities from beach view. The temporary barrier shall consist of 1.3 to 1.9 centimeter (1/2 to 3/4 inch) plywood constructed 1.8 to 2.4 meters (6 to 8 feet) high depending on the location. The barriers will be placed at the site with input from NMFS Western Regional Office personnel so that they will hide as advantageously as possible the demolition and construction activities that may be seen by pinnipeds.

-Sheets of 4 ft. by 8 ft. by 5/8<sup>th</sup> inch plywood framed with wooden two by fours were used to create the visual/sound barrier. The sheets of plywood were stood upright (8 feet tall) and held up with two wooden two by fours hinged to the top of the frame, so they could be collapsed and be moved depending on equipment location and need for access by equipment (See figures 5 and 12).



Figure 5. Building visual/acoustic barrier as seen from monitoring location: Top of Stairs (at juncture of tan and gray walls) next to construction site.

- d) A NMFS-qualified, trained Protected Species Observer (PSO) shall be used to detect, document, and minimize potential impacts from demolition and construction activities. The PSO shall attend the project site 30 minutes prior until 30 minute after demolition and construction activities cease each day throughout the demolition and construction window. The PSO shall be approved by NMFS prior to construction activities. The PSO shall search for marine mammals using binoculars and/or the naked eye within the Level B (behavioral) harassment zones which may vary upon the type of in-air sound being produced by the demolition and construction activities. The PSO will observe from a station along the breakwater wall as well as the base of the cliff below the construction area. If inclement weather limits visibility within the area of affect, the PSO will perform visual scans to the extent conditions allow. The PSO will not have to monitor on days or portions of days when there will be little chance of disturbance from demolition and construction activities (e.g., nothing visual, sound levels at source less than 90 dB re 20  $\mu$ Pa. or all work activities inside the building).

-Three Hanan & Associates, Inc. personnel: Antonette Gutierrez, Marina Heberer, and Dr. Hanan performed all observations by eye and with binoculars. PSO resumes were sent to NOAA Fisheries for approval; additionally, both PSOs were specifically trained at CP by Dr. Hanan for this project. A monitoring plan and observation sheets were developed and used for recording sound and observations (see Appendices I, II, III).

This plan and observation sheets included hourly collection and count paradigms for: environmental data, recording locations relative to the buffer zones (Figure 3 and Tables 1 and 4), sound recording, all marine mammal observations, and public presence documentation.

- e) The PSO shall visually scan the action area for the presence of marine mammals at least 30 minutes prior to the start-up and continuously throughout periods of in-air noise-generating activities. Visual scans shall continue for at least 30 minutes after each noise-generating episode has ceased.

-This mitigation was included in the monitoring plan and adhered to by PSO's (see Appendices I, II, III below regarding daily start and end of construction, as well as, sound recorded by construction equipment type [Table 1]).

- f) The PSO shall use visual digital recordings and photographs to document individuals and behavioral response to the construction activities. The PSO shall make hourly counts of the number of pinnipeds present and record sound or visual events that result in behavioral responses and changes, whether during demolition and construction activities or from public stimuli. During these events, pictures and videos will be taken when possible to document individuals and behavioral responses.

-Please see d) above regarding the monitoring plan, photos, and videos, which was followed. During the first year H&A accessed the WAN camera via computer to document seal hauling behavior (especially at night) to obtain peak daily counts until the camera was removed (approximately August 1, 2013; it was mounted on the roof of the old lifeguard station which was demolished Figure 1 above). The camera has not been redeployed.

- g) A PSO shall record the following information when a marine mammal is sighted:
  - i) Species group size, age/size/sex, categories (if determinable) behavior when first sighted and after initial sighting. heading (if consistent), distribution, bearing and distance relative to the sound source(s), group cohesiveness, duration of presence, apparent reaction to the demolition and construction activities (e.g., none, avoidance. approach, etc.), direction and speed of travel, duration of presence, and if there are other causes of potential disturbance occurring;
  - ii) Date, time, location, activity of demolition and construction operations, monitoring and mitigation measures implemented (or not implement d), tidal stage, weather conditions, Beaufort sea state, wind speed, visibility and sun glare· and
  - iii) The data listed under Condition 6(g) (ii) shall also be recorded at the start and end of each observation watch and during a watch whenever there is a change in one or more variables.

- Please see d) above regarding the monitoring plan and recordings and see Results of Monitoring Activities below.

- h) A PSO shall also record the time of arrival and departure on site, commencement and cessation of in-air noise demolition and commencement activities, and presence of humans on the beach. Whenever possible, the PSO should determine as to whether or not the harassment or pinnipeds is attributable to the construction activities and/or the presence of the public on the beach and around the Children's Pool area. A PSO shall record the number of people on the beach and surrounding area as well as their location relative to the animals.

-Please see d) above regarding the monitoring plan, which includes each of these mitigations; also please see Observed Harassments below.

- i) Buffer zones shall be established (i.e., where sound pressure levels [SPLs] are at or above 90 decibels (dB) re 20 µPa for harbor seals and/or at or above 100 dB re 20 µPa for all pinniped species except harbor seals [for



in-air noise]) around the demolition and construction activities so that in-air sound associated with the construction activities no longer exceed levels that are potentially harmful to marine mammals.

-The City installed a rope across CP beach (near the middle of the beach to keep the public a reasonable distance away from the seals) which defined approximately the 90 dB re 20  $\mu$ Pa buffer zone for construction sounds see Figure 8, “Middle Rope” location, which is approximately 15 meters from the nearest possible construction position). The 100 dB re 20  $\mu$ Pa position was above the beach, behind a fence and therefore impracticable as a buffer zone since none of the pinnipeds could have hauled out in this fenced area of the beach and cliff. We weren’t allowed inside the construction area while equipment was operating but were fairly close at monitoring sites: “Top of Stairs” and “Casa”, which gave sound levels as close to the source as we were allowed. Buffer zones: we set up three stations “Break Wall 1”, “Middle Rope”, and “Bottom of Stairs”, which were estimated to be the distance at which 110 dB re 20  $\mu$ Pa at the source would attenuate to 90 dB re 20  $\mu$ Pa. The three monitoring sites are about 15 meters from nearest possible construction position but the equipment moved about within the construction area so you can measure sound at Top of Stairs and Casa and sound at the three other monitoring sites to get an estimate of sound source and attenuation. The equipment moved around inside the fencing as they worked but it is a small area and our measurements give good ranges of each piece of equipment. One problem with trying to get exact measurements to the equipment and getting a sound measurement is that the public was often very close to us as we took the measurements (often we were standing in a crowd) and sounds from the public contributed to the peak recorded sounds during the approximate two-minute period of sound monitoring. So the measurements were not always actual measurements of equipment sound but can give a plausible range.

- j) In-air noise monitoring and reporting shall be performed during the demolition and construction activities at and near the Children's Pool Lifeguard Station. The PSO shall have access to handheld digital sound level measuring devices. The study will characterize in-air sound levels in the area related to (e.g. construction equipment including backhoe, dump truck, cement truck, air compressor, electric screw guns, jackhammer, concrete saw, chop saw, and hand tools) and in the absence (as a background and baseline [i.e., ambient] for the project) of all construction activities, and confirm or identify harassment isopleths for all types of construction activities conducted. To better assess in-air sound propagation and source levels, the distance from the sound meter to each sound-producing activity when conducting sound measurements shall be noted. Monitoring shall be conducted three to five days prior to demolition and construction activities and shall include hourly systematic counts of pinnipeds using the beach, Seal Rock, and associated reef areas to provide baseline data regarding recent haul-out behavior and patterns as well as background noise levels near the time and demolition and construction activities. Monitoring shall continue for 60 days following the end of demolition and construction activities. Following construction, the City of San Diego will have a program where a PSO that will randomly select a day per week to visit the Children's Pool.

-Please refer to the monitoring plan (Appendices I, II, III) and also Hourly Sound Recordings below describing the sound meter and its use. Note, we added to the data sheet, a new datum for estimated distance to each sound source when possible those data are presented in results and Table 1. H&A began observations and monitoring on May 27, 2014 in anticipation of construction starting June 10, 2014; however, the presence of nesting western seagulls prevented start of construction until the chicks fledged (August 6, 2014). H&A continued monitoring one random day per week for 60 days following the halt of construction January 15, 2015 completing those observations March 13, 2015.

- k) After the first two months of monitoring during demolition and construction activities, the City of San Diego shall take the mean number of observed harbor seals at the Children's Pool in a 24-hour period across the two months and compare it to the mean of the lower 5 percent confidence interval. If the observed mean is lower,



the City of San Diego shall shut-down demolition and construction activities and work with NMFS and other harbor seal experts (e.g., Mr. Mark Lowry, Dr. Sarah Allen, Dr. Pamela Yochem, and/or Dr. Brent Stewart) to develop and implement a revised mitigation plan to further reduce the number of takes and potential impacts. Once a week every week thereafter, the City of San Diego shall take the same mean of observed harbor seals across the previous three tide cycles (a tide cycle is approximately 2 weeks) and compare it to the 95% lower confidence interval for the same time period. If the observed mean is lower, the City of San Diego shall shut-down and take the action described above. If abandonment of the site is likely, monitoring shall be expanded away from the Children's Pool to determine if animals have been temporarily displaced to haul-out sites in the southern California area (e.g. Torrey Pines, Point Loma, etc.).

- After the first two months of monitoring, H&A evaluated mean and peak counts of harbor seals at CP relative to historic and projected abundance estimates (see Figures 6 and 7) and presented the findings to NMFS. Based on those data, we determined that harbor seal numbers were increasing during the two-month period and therefore site abandonment was not likely.

- regarding weekly mean comparisons to the previous three tide cycles please see Figure 15 which has a running six week mean for CP. This mean is well above the lower 95% confidence interval for the predicted CP mean based on previous CP studies. In fact the running mean is above the previous mean for most of the construction period and even above the upper 95% confidence interval for the latter two thirds of the construction period.

## Results of Monitoring Activities

In anticipation of the 2014 IHA issuance and start of demolition/construction activities, H&A monitoring began May 27, 2014. However because of nesting western seagulls, construction did not start until the seagull chicks fledged August 6, 2014. During the 2014-15 construction period, H&A adhered to the monitoring plan as approved by the City of San Diego and NMFS with hourly counts of seals and people, and sound monitoring at six locations (Figures 10 and 11); a seventh monitoring site was added on South Casa beach to monitor sound towards the reef area where seals haul out during low tides. We counted a total of 63,598 harbor seals during hourly counts, because the seals tend to stay on the beach for long periods of time (longer than our counting interval), there was a significant number seals counted multiple times. We also counted a total of 27,844 people at 3 locations surrounding the seals at CP (on the street side walk way above CP, at the rope on CP beach, and on the Breakwall, see Figure 13) and because of hourly counts, many were also counted multiple times. We recorded environmental conditions hourly with: mean Beaufort wind scale of 2.1; mean wind speed 2.0 knots, mean visual distance 25.1 miles, and mean sky cover 45%. Demolition/construction commenced August 6, 2014 and concluded January 15, 2014. Weekly monitoring concluded (March 15, 2015) 60 days following the end of construction; it is noteworthy that on March 12, 2015 were observed 60+ pups at CP, which was as many pups as were recorded all last year.

H&A did not note any unanticipated problems with the monitoring plan and our execution of it. We recorded 1,186 lines of spreadsheet data (representing 1,084 hours [127 days] of observation) including hourly counts, sound monitoring, counts of public visitors, and associated environmental data. We recorded 746 observations of seal alerts and flushes (see Table 3). In addition to Pacific harbor seals, we recorded 24 sightings of cetaceans (approximately 72 common bottlenose dolphins; one sighting of several hundred common dolphin (species not identified); 32 grey whales; 248 California sea lions on seal rock; 93 California sea lions on the CP beach; 16 California sea lions on South Casa Beach; 9 California sea lions on the reef; and 28 days with a juvenile northern elephant seal on the CP beach. H&A observed several dead harbor seal pups at CP and called NOAA Fisheries for pickup of each one. We also observed one dead adult California sea lion (2/5/2015-3/5/15) and one dead juvenile (3/5/15) California sea lion

on CP beach after start of the City beach closure period (December 15, 2015) and after the construction period. We did not investigate but did report to NOAA Fisheries (Southwest Fisheries Science Center).

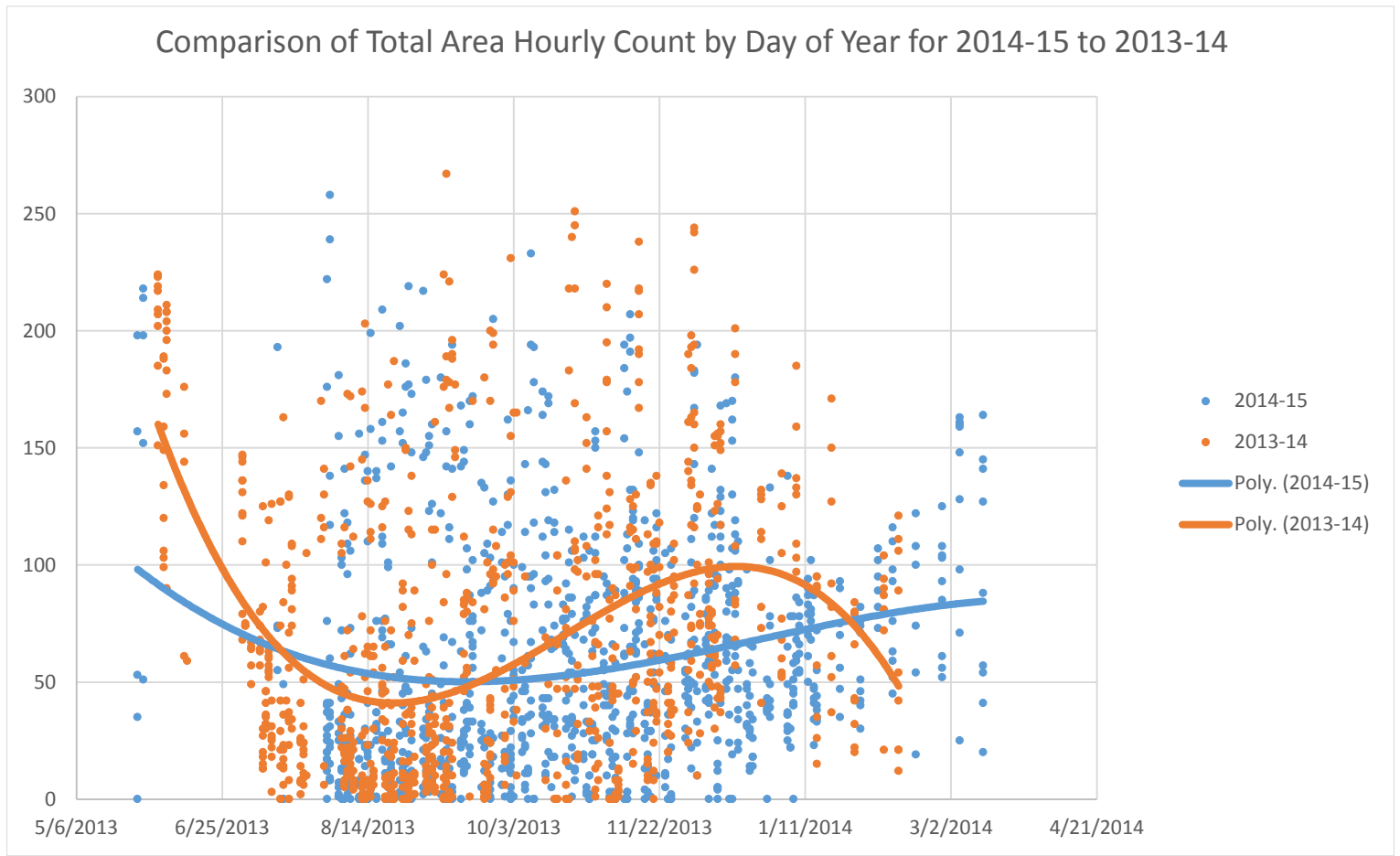


Figure 6. Harbor seal counts during most recent construction period (2014-15, blue trend line) compared to previous period (2013-14 red trend line) at Children’s Pool, La Jolla, CA. Counts include CP beach, South Casa Beach, Seal Rock, and reef area.

### Hourly Pinniped Counts

Counts and mean trends of seals observed during the period authorized by the 2014 IHA are shown in Figures 6 and 7 fit with 3<sup>rd</sup> degree polynomial trend lines; predicted harbor seals hauling out by day as projected from previous studies at CP with upper and lower 95% confidence intervals included in Figure 7. Also shown on Figure 14 are juvenile harbor seals present which were added into the CP total. The third data set is displayed as the hourly totals by day for CP, Seal Rock, and Casa Beach added together as the Area Total with a trend line (Figures 6 and 7). We note that CP Total and Area Total showed declining trends prior to start of construction. We observed that public interactions seemed to be increasing during that time and also noted that there were large numbers of seals hauling out at night and into early morning hours (Figure 9). We moved our daily monitoring start time to just before dawn rather than just before construction, frequently an hour or more before start of construction. During this time period, our peak count for monitoring was often during the first or second count of the day (Figure 9), before people started arriving at CP. Because of human disturbance at CP, daily peak counts (Figures 6 and 7) are likely better indicators of seals utilizing the area and the trend lines fit to peak counts better indicators seals present when comparing to other less disturbed seal hauling sites.

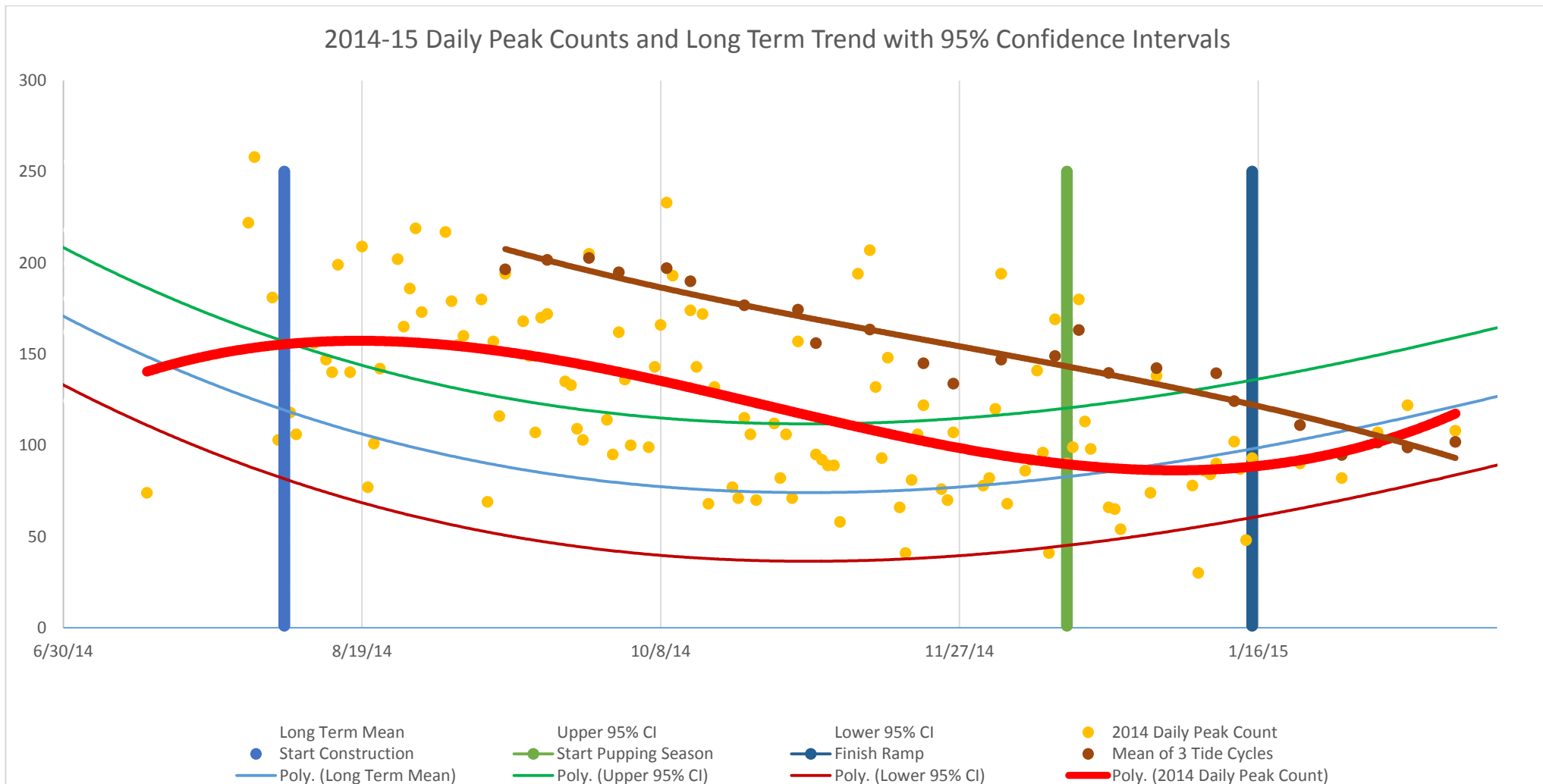


Figure 7. Children's Pool Harbor Seal Daily counts, Weekly Peak Haulout Counts, and running mean of counts during three tide cycles which stays above the lower 95% confidence level; Predicted haul out curve with upper and lower 95% Confidence Levels and solid vertical lines for Start (8/6/14) and End (12/15/15) of construction and finish of ramp South Casa Beach (1/15/15).

We recorded sound using an Extech<sup>®</sup> Instruments (model HD600) digital, handheld sound level meter recording in decibels. We recorded the maximum sound within a two-minute interval, fast (125 ms) response time, A-weighting, within a range of 30 - 130 dB as recommended by the manufacturer and distributor. When seals were above or very near the rope at the center of CP beach, we often did not go onto the beach to take recordings and possibly flush the seals. However, if members of public had already approached the seals at the rope, we proceeded with the recordings at all stations. For safety, no measurements were taken at Breakwall 1 or 2 when waves were breaking over the seawall. Mean ambient sound with no construction for all seven monitoring stations (n = 454) was 68.9 dB re 20  $\mu$ Pa (69.2 in 2013) with a range of 51.5 to 97.2 dB re 20  $\mu$ Pa (55.6 to 93.7 in 2013). This maximum recording (97.2 dB) represents screaming people on the sea wall about 0.5 meter from the monitor (Breakwall 1, Figure 8). Mean average sound during construction for all seven monitoring stations (n = 3,113) was 71.3 dB re 20  $\mu$ Pa (70.3 in 2013) with a range of 49.4 to 102.7 dB re 20  $\mu$ Pa (50.7 to 103.1 in 2013). This maximum recording was taken next to the construction fencing on the bluff above South Casa Beach (“Casa” monitoring site) and was recorded from a bobcat with jackhammer attached and the monitor was approximately 1 meter away. It did cause an alert of 5 seals about 10 meters from the source and 4 of them flushed into the water. We took another sound measurement on the beach below, 6 meters from the source and recorded 86.9 dB re 20  $\mu$ Pa. Thus the seals were not exposed to a sound level above 90.0 dB re 20  $\mu$ Pa. Please see Table 1 for summary results of recorded sound levels by individual type of equipment.





Figure 8. Monitoring location Breakwall 1 and sound meter on breakwater railing.

Table 1. Mean sound (dB re 20 µPa) and mean distance from source (in meters) by type of equipment and monitoring location. Top of Stairs (CPT) and Casa (Figures 10 and 11) are two locations closest to construction just outside safety fencing. Middle Rope (CPM) location is about midway across Children’s Pool beach and next to the City installed rope barrier. CPB is at the extreme south end of CP beach at the bottom of the access stairs.

Location	Backhoe	Bobcat	Bobcat with backhoe	Bobcat with skiploader	Broom	Cement Truck	Chain saw	Compactor	Crane	Driver/Drill	Dump Truck	Excavator	Forklift	Hammer	Hand Tools	Jackhammer	Jackhammer on Bobcat	Jackhammer on Excavator	Mini Excavator	Rolling Attachment on Mini Exc	Sand Blaster	Saw, Circular	Saw, Concrete
<b>CPM</b>																							
n	1		1		1		1			1					1		3	2	4		5	3	
dB mean	61.6		66.5		64.2		70.2			77.6					68.5		65.5	67.8	68.2		76.0	68.2	
distance mean	45		10		20		20			10					20		32.7	37.5	32.5		17.5	16	
<b>CPB</b>																							
n			1												1		5.0	1.0	2.0		5.0	1	
dB mean			67.3												68.5		65.9	62.2	64.0		69.5	67.7	
distance mean			50												20		35	45	40		25	30	
<b>CPT</b>																							
n	1	3	3	5	1				1		2		1	15			8						
dB mean	66.5	65.1	65.1	67.3	69.9				82.9		78.4		68.4	80.3			79.1						
distance mean	10	15.0	20.0	25.0	5				5		15		20	5.6			14.1						
<b>Casa</b>																							
n		5.0	5.0	10.0		6		4		5		2		13.0	3	11	5		6	2	1	12	2
dB mean		79.7	89.2	79.2		76.8		74.0		78.3		83.1		79.2	77.9	84.1	83.1		73.9	75.6	80.2	70.0	83.3
distance mean		6.8	6.4	7.4		10.7		6.3		6		5.5		8.4	19.7	10.4	15.4		9.2	7.5	10.0	6.1	7.0

Table 1. Continued: Casa beach is a west end of the construction site near the reef. W Gull is on the sea wall monitoring site (S5) and W Seal (S6) is also on the sea wall, the farthest monitoring location from the construction site.

Location																				
	Backhoe	Bobcat	Bobcat with backhoe	Bobcat with skiploader	Broom	Cement Truck	Chain saw	Compactor	Crane	Driver/Drill	Dump Truck	Excavator	Forklift	Hammer	Hand Tools	Jackhammer	Jackhammer on Bobcat	Jackhammer on Excavator	Mini Excavator	Rolling Attachment on Mini Exc
<b>Casa Bch</b>																				
n	2	1	1	2.0				1								3.0	2.0			1.0
dB mean	71.4	75.2	73.7	79.2				89								88.2	71.4			75.7
distance mean	20	10	15	9.0				2								34.9	17.5			6.0
<b>W Gull</b>																				
n			1	3.0	1			2						2	1	1	4		3	5
dB mean			68.9	70.7	67.5			70.1						71.2	74.2	69.6	71.7		76.7	90.8
distance mean			30	38.3	25			16						15	20	40	28.8		33.3	31.6
<b>W Seal</b>																				
n																			1	1
dB mean																			69.6	75.9
distance mean																			70	52
																				35

## Observed Harassments

H&A attempted to identify the causes and recorded all **observed** alerts and flushes and partitioned them into four categories in the database: 1. Biological alerts and flushes (*e.g.*, seals and sea lions disturbing seals, birds disturbing seals), 2. Public alerts and flushes (*e.g.*, people approaching close to or disturbing seals, loud voices or sounds, swimmers, cars, motorcycles, trucks not associated with construction, dogs, landscape equipment, kayakers/paddle boarders in the CP cove, aircraft, lifeguard activity, Sea World rescues, water sampling, portable restroom maintenance, or City workers maintaining the beach area and access stairs), 3. Construction alerts and flushes (*e.g.*, any visual or sound item related to construction), and 4. Could not Be Determined (occasionally all or some of the harbor seals on a hauling site will alert and/or flush into the water for no apparent reason other than a presumed kind of flock reaction for safety towards or into the water). Please see Table 2 for a summary of alerts and flushes.

Table 2. Summary of Children's Pool Alerts (seals raise heads) and Flushes (seals go into water). Count is number of disturbances observed for a category: Biological includes birds and pinnipeds; Construction includes anything related directly to construction at CP; CBD means could not be determined. Reaction is the seal's response to disturbance (alert or flush). Total Seals is the sum of seals disturbed and mean is average number of seals disturbed by category.

Count	Cause	Reaction	Total Seals	Mean # Seals
27	Biological	Alert	1136	42
22	Biological	Flush	528	22
6	Biological	Alert&Flush	66	11
126	Construction	Alert	5634	45
92	Construction	Flush	1502	16
9	Construction	Alert&Flush	288	32
161	Public	Alert	5103	32
185	Public	Flush	3156	17
33	Public	Alert&Flush	758	23
18	CBD	Alert	616	34
23	CBD	Flush	450	20
4	CBD	Alert&Flush	39	10

The trend line in Figure 9 below shows a relationship which we noticed both before and during construction that the number of seals tend to decline as the city starts to awaken and the day progresses; people start arriving at CP for various activities not always related to seal watching: joggers and walkers, traffic passing by, maintenance of facilities and landscaping, trash trucks, lifeguard activities, storm water sampling, seal photographers, and seal enthusiasts.



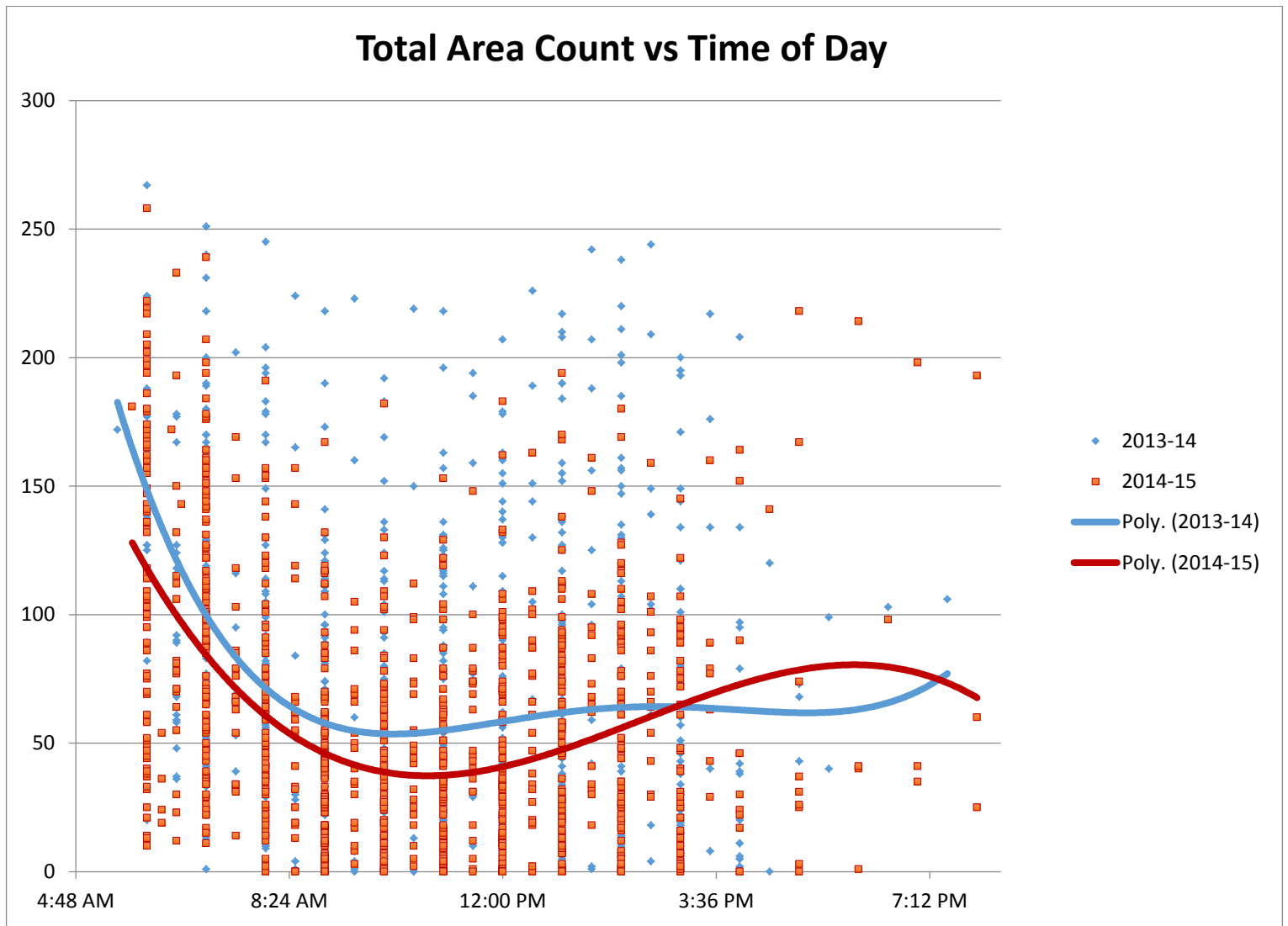


Figure 9. Comparison of 2013-14 to 2014-15 harbor seal counts by time of day. Note similarity and the early morning declining trend in both years.

## Discussion

As expected, demolition and construction activities did cause alerts and flushes (Table 2) and as with the first year was about 1/3 of the total alerts and flushes observed at CP. Demolition/construction sound levels were similar to those predicted in the IHA application (Tables 1 and 4). The loudest sound recorded was from a jack hammer attached to a bobcat (102.7 dB re 20  $\mu$ Pa) measured at 1 meter from the source which had dissipated to calculated 82.7 dB re 20  $\mu$ Pa at the seals on South Casa Beach. Sound measurement at all seven locations often included the public and frequently construction sounds could not be separated from other sounds including waves crashing, people screaming, street noise, aircraft, birds, sea lions, and dogs. We did however estimate distances to sound sources when possible (Table 1). Harbor seals continue to haul out in large numbers and have their pups in record numbers at CP despite all the disturbances including construction.

## Literature Cited

- Hanan, D .A. and Z. D. Hanan. 2014. Final Report. Incidental Harassment Authorization Issued June 28, 2013 – June 27, 2014 to the City of San Diego for La Jolla California Children’s Pool Construction and Harbor Seal Monitoring. National Marine Fisheries Service. Office of protected Resources 1315 East-West Hwy Silver Spring, MD 20910. 35 pages.
- Hanan & Associates. 2011. Biological Report: Update Regarding Pinnipeds and the California Least Tern at Children’s Pool, La Jolla, California, and Lifeguard Tower Reconstruction. Unpublished report submitted to the City of San Diego. March 2011. 34 pages.
- Hanan, D. A., 2004. Biological letter report and recommendations for construction. Regarding pinniped surveys at Children’s Pool, La Jolla, California. Unpublished report submitted to the City of San Diego. May 2004. 21 pages.
- Linder, T.A. 2011. Estimating population size of Pacific harbor seals (*Phoca vitulina richardsi*) at Children's Pool Beach in La Jolla, California, using photo-identification. M.S. Thesis, University Of California, San Diego. 47 pages.
- Yochem, P. K., and B. S. Stewart, 1998. Behavioral ecology and demography of seal and sea lions at the Seal Rock Marine Mammal Reserve. Hubbs-Sea World Technical Report 98-282.



Figure 10. Children's Pool construction site and measurements away from construction site.

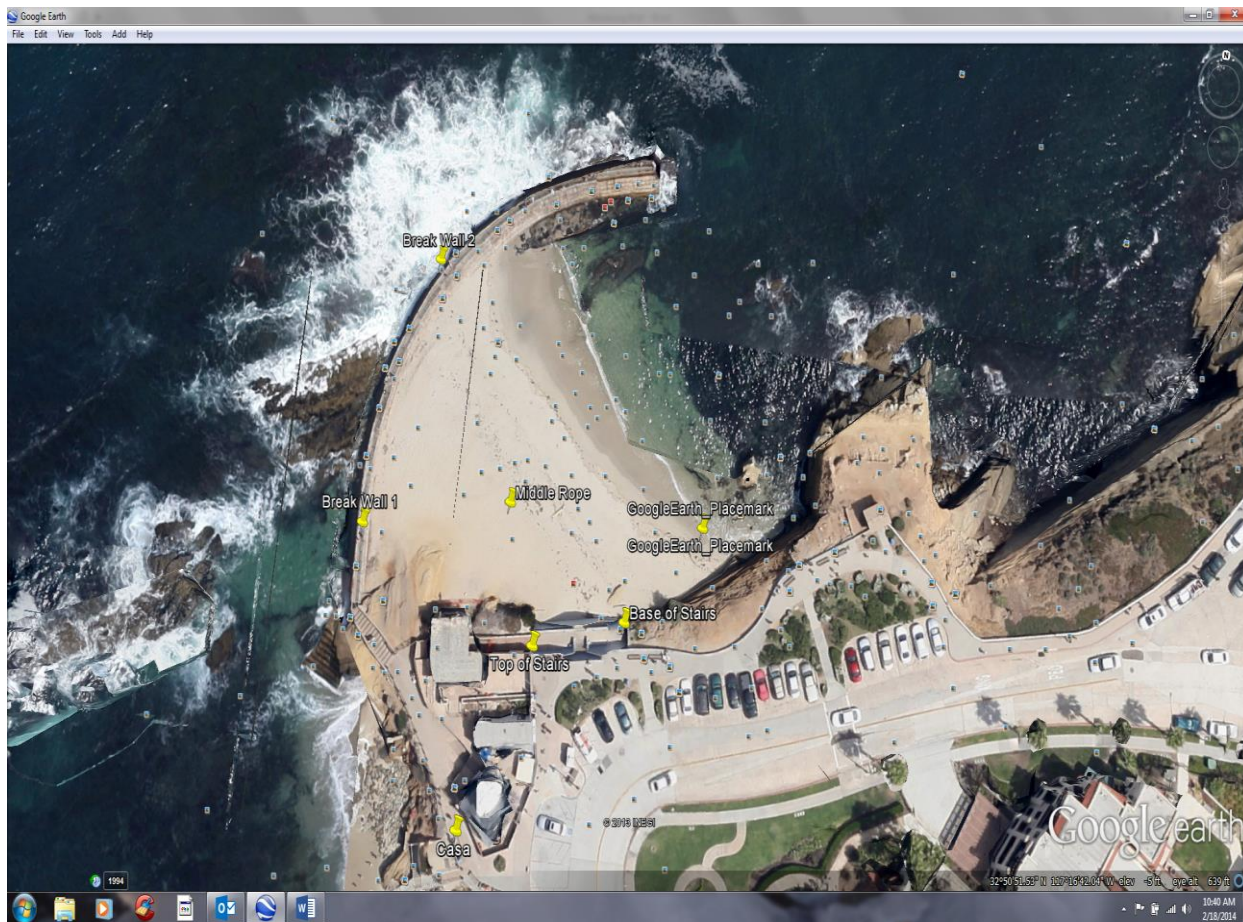


Figure 11. Location of monitoring stations (Top of Stairs, Bottom of Stairs, Middle Rope, Casa, Breakwall 1, and Breakwall 2) at Children’s Pool, La Jolla, CA.





Figure 12. Monitoring location: Casa (above Casa Beach and next to construction site).





Figure 13. Monitoring location: Breakwall 2. Note Breakwall 1 located this side of second man on wall (tan shirt) and note yellow rope barrier on beach at white sign with four people standing on beach.



Figure 14. Moving visual/acoustic barriers to lower level of construction site after removal of old building.

Table 3. 2013 Summary of sound levels in decibels (dB re 20 µPa) recorded during periods with no construction and during construction at each of the monitoring sites.

2013	Middle Rope	Base Stairs	Top Stairs	Casa	Breakwall 1	Breakwall 2
No Construction						
Mean	65.4	66.5	67.7	70.2	70.6	73.5
Maximum	85.4	86.3	88.2	88.1	93.7	92.5
Minimum	55.6	56.0	60.1	62.4	61.2	64.6
During Construction						
Mean	65.4	65.4	74.0	72.3	71.0	72.5
Maximum	92.0	84.7	103.1	102	87.8	99.9
Minimum	50.7	51.4	54.6	54.6	57.3	61.2

Table 4. 2014 Summary of sound levels in decibels (dB re 20 µPa) recorded during periods with no construction and during construction at each of the monitoring sites.

2014	Middle Rope	Base Stairs	Top Stairs	Casa	Breakwall 1	Breakwall 2
No Construction						
Mean	63.4	66.7	67.7	70.4	70.7	74.7
Maximum	81.2	78.1	84.0	85.9	86.8	97.2
Minimum	51.5	53.8	54.3	61.2	57.6	63.0
During Construction						
Mean	66.6	69.5	70.8	74.2	70.5	72.4
Maximum	94.1	91.3	92.9	102.7	86.4	91.3
Minimum	49.4	51.9	56.9	59.9	55.0	63.5

## Appendix I. 2014 Monitoring plan for the La Jolla Children's Pool Lifeguard Station demolition and construction:

Monitoring of the Lifeguard Station remodel will be completed by Hanan & Associates, Inc. (H&A) in accordance with Incidental Harassment Authorization (IHA). National Marine Fisheries Service (NMFS) approved Protected Species Observers (PSO) will be provided by H&A during periods in which the in-air noise-generating activities are scheduled to exceed 90 dB. If additional periods are deemed necessary by the contracting/engineering company (Stronghold Engineering), H&A must be made aware 24 hours prior to start of that activity in order to provide an onsite PSO. The PSO will complete an initial scan of the action area 30 minutes prior to construction activity, continuously during the activity, and at least 30 minutes after cessation of the in-air noise-generating activity. When inclement weather limits visibility, the PSO will perform scans to the extent that weather permits. If weather precludes the PSO from performing the counts/sound monitoring on the Sea Wall, locations: C4, S5 and S6, the PSO will perform the counts and sound monitoring as close as possible. If waves are crashing over the sea wall and the safety of the PSO and/or equipment is in question; the PSO will perform the counts and sound measurements from site "IW" or further north along the bluff as needed to accurately perform those required counts.

The PSO will be required to complete visual counts of all marine mammals in four locations on an hourly basis, as well as, audio monitoring in 7 locations during this same hourly schedule (see Monitoring Diagrams for locations, attached). Audio monitoring will be completed using a handheld digital sound level measuring device Extech HD600 and estimate distance to sound source. The PSO will complete a "Data Sheet" (DS, attached) for each day and during each step of the monitoring process as follows:

Upon arrival at the site, the PSO will complete the Consultant Site Visit Record, as required by the City, and then record the time, Beaufort sea state, weather conditions including cloud cover, wind velocity and direction, horizontal visibility, and number of public visitors present by location at Children's Pool. The air and water temperature and tide height will be obtained from the NOAA website or from lifeguard station signs. When obtained at the site this will be noted on the DS, however; when these data are not available, the information will be obtained from the NOAA website after the cessation of work and documented at a later point. The time of in-air noise-generating construction activity commencement will also be recorded.

Initially the PSO will take audio measurements at site "S1", as close to the middle of the beach and rope line as possible without impacting the seals, where the PSO will monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

The PSO will then proceed to site "S2", east side of beach on rope line, where the PSO will again monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

The PSO will then proceed to site "S3", at the top of the stairs as close to the construction site as safely possible, where the PSO will again monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

Adjacent to site "S3," at site "C1" the PSO will perform a visual count, utilizing binoculars, of all seals hauled out on "Seal Rock" and record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.



The PSO will then proceed to site “C2” where a count of all seals hauled out on the Children’s Pool beach and rocks within the cove. Again the PSO will record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females. For this count, the PSO will also count and record on the DS: the number of public visitors on the Sea Wall, the beach, and at the top of the stairs.

The PSO will now move to the next position “S4”, overlooking Casa Beach, where the PSO will again monitor the sound level for two minutes and record the “maximum” decibel level monitored on the DS.

Adjacent to site “S4,” at site “C3” the PSO will perform a visual count of all seals hauled out on Casa Beach and record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.

The PSO will now move to the next position “S6”, on the Sea Wall near birds nest N5, where the PSO will again monitor the sound level for two minutes and record the “maximum” decibel level monitored on the DS.

The PSO will finish the fourth and final count from site “C4”, where all seals hauled out on the reef area west of the Sea Wall will be counted. The PSO will also take a sound measurement on this beach. Again the PSO will record the following on the DS: a) two-minute sound measurement, b) total count, c) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.

Continually during the activity generating the in-air noise the PSO will observe the seals and note on the DS any behavioral responses as well as the assumed cause of this response, whether it from visual or acoustic cues: a) construction and equipment type or b) type of public or other non-construction stimuli. During these events, and if possible, the PSO will take video and/or photographs to document these responses.

Lastly, active seagull nests were observed near and within the construction site during pre-construction surveys, the PSO will monitor any activity within these nests and denote any changes on the DS.

Throughout the day, the PSO will continue to monitor and record any changes in the Beaufort sea state, weather conditions including cloud cover, wind velocity and direction, horizontal visibility, and number of public visitors present by location at Children’s Pool. The time of in-air noise-generating activity completion will also be recorded at the end of the day or activity and the PSO will document the departure time from the site.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury or mortality, the City of San Diego shall immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to [Jolie.Harrison@noaa.gov](mailto:Jolie.Harrison@noaa.gov) and [Howard.Goldstein@noaa.gov](mailto:Howard.Goldstein@noaa.gov) and the West Coast Regional Stranding Coordinator ([Justin.Greenman@noaa.gov](mailto:Justin.Greenman@noaa.gov)). The report must include the following information:

(a) Time, date, and location (latitude/longitude) of the incident; the type of activity involved; description of the circumstances during and leading up to the incident; status of all sound source use in the 24 hours preceding the incident; water depth; environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility); description of marine mammal observations in the 24 hours preceding the incident; species identification or description of the animal(s) involved; the fate of the animal(s); and photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with the City of San Diego to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The City of San Diego may not resume their activities until notified by NMFS via letter or email, or via telephone. Throughout the project the PSO will continually monitor for any dead stranded cetaceans in the event that this should occur the incident should be reported to NMFS Southwest Fisheries Science Center at 858-546-7162. Upon the detection of any stranded animals by the PSO or other project staff on site, San Diego Sea World's stranded animal hotline will be contacted, at 1-800-54-7325.

Appendix II. Daily Monitoring Sheet to be maintained while observing construction, recording sound, and visitors.

Arrival Time:		Date:		Observer:										Start of Const:						
Environmental						Const Equip	Seal & People Counts (CP Total/Juvenile)							Decibel (Max)/Dist to Source						
Bft	Tide	Wthr/gl	Wind	Vis	Time		S. Rk	CP	Wall	Rope	Top	Casa	Reef	CP M	CP B	CP T	Casa	Wall G	Wall S	
					7:00															
					7:30															
					8:00															
					8:30															
					9:00															
					9:30															
					10:00															
					10:30															
					11:00															
					11:30															
					12:00															

12:30

13:00

13:30

14:00

14:30

15:00

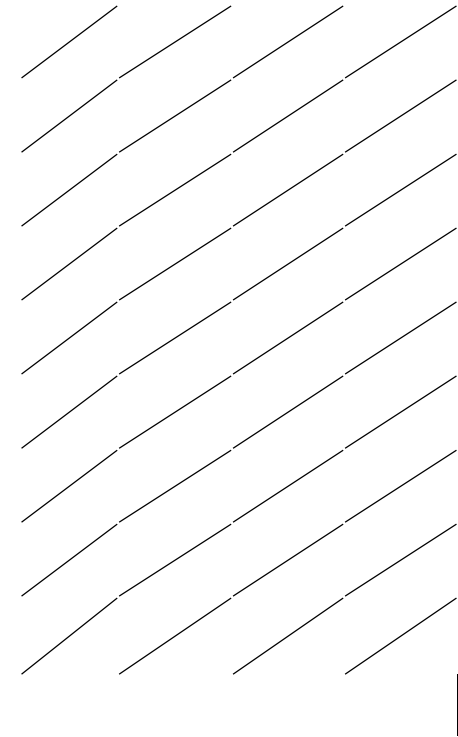
15:30

4:00

4:30

**Departure Time:**

**End of Const:**





Appendix III. Daily Observation Sheet for recording all observed harassments of marine mammals at Children's Pool

Date:		Observations			
Time	# Animals	# PPL@W	#PPL@R	Response Type (alert/flush)	Potential Disturbance
7:00 AM					
7:30 AM					
8:00 AM					
8:30 AM					
9:00 AM					
9:30 AM					
10:00 AM					
10:30 AM					
11:00 AM					
11:30 AM					
12:00 PM					

12:30 PM					
1:00 PM					
1:30 PM					
2:00 PM					
2:30 PM					
3:00 PM					
3:30 PM					
4:00 PM					